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Innovative entrepreneurship development: main problems and educational limitations in Kazakhstan

Abstract. The study aims to identify the main problems of the development of innovative entrepreneurship in general and enhance the role of entrepreneurial education in Kazakhstan in the context of the implementation of the priority state policy of innovative development. The purpose of the study was to find out why the reforms of the long-term state policy on the development of entrepreneurship did not lead to an increase in the innovative potential of entrepreneurs in the national innovation system. The study was conducted on the basis of questioning and interviewing entrepreneurs of Kazakhstan who introduce direct innovations in their activities. In the period from 15 August 2018 to 15 September 2018, a sociological survey to monitor innovation activity at 172 enterprises in Kazakhstan was conducted. The study was conducted by random sampling from the general totality of all enterprises of the republic. The total amount of the general totality was taken as the number of operating small and medium-sized businesses (SMEs), as of 1 January 2018, which, according to statistics, was 1,549,592 units in the republic. It surveyed 172 companies of all categories of business, from large to small ones. The questionnaire and the interview included a fixed set of questions. Most of the questions made it possible to determine the opinion of entrepreneurs regarding the current state of development of the business sector in Kazakhstan and the main problems that impede the activation of innovations, including the lack of competence among business leaders and poor quality of preparedness of specialists. The main conclusion that was made by the authors within the framework of this mini-study is that the existing system of state and institutional support for entrepreneurship in Kazakhstan does not meet

the modern requirements for building a knowledge economy based on effective interaction between the state, universities and business. The results of the study are aimed at adjusting the state innovation policy of Kazakhstan, in terms of the use of more targeted measures to develop innovative entrepreneurship and improve the system of business education.
Keywords: Innovative Entrepreneurship; Motives for Implementation of Innovations; Entrepreneurial Education
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Розвиток інноваційного підприємництва: основні проблеми й освітні обмеження в Казахстані

Анотація
Дослідження авторів спрямоване на виявлення основних проблем розвитку інноваційного підприємництва в цілому, а також підвищення ролі підприємницької освіти в Казахстані в умовах реалізації пріоритетної державної політики інноваційного розвитку. Мета дослідження полягала в тому, щоб з'ясувати, чому реформи довгострокової державної політики щодо розвитку підприємництва не призвели до підвищення інноваційного потенціалу підприємств у національній інноваційній системі. У період з 15.08.2018 р. по 15.09.2018 р. було проведено соціологічне опитування з моніторингу інноваційної активності на 172 підприємствах Казахстану. Дослідження проводилося методом випадкової вибірки з загальної сукупності всіх підприємств республіки. Загальна сума загальної сукупності була прийнята як кількість діючих суб'єктів малого й середнього підприємництва станом на 1 січня 2018 року, яке, за даними статистики, склало 1 549 592 одиниці в республіці. Було досліджено 172 компанії всіх категорій бізнесу – від великих до малих. Дослідження проведено на основі анкетування та інтерв'ювання підприємців Казахстану, які впроваджують у своїй діяльності безпосередні інновації. У рамках опитувального листа та інтерв'ю ставився фіксований набір запитань. Основна частина запитань дозволила визначити думку підприємців з приводу поточного стану розвитку підприємницької сфери в Казахстані та головних проблем, що перешкоджають активізації інноваційної діяльності, в тому числі через відсутність компетенції у керівників підприємницьких структур і низьку якість підготовки фахівців. Основний висновок, який зроблений авторами в рамках даного міні-дослідження, полягає в тому, що існуюча система державної та інституційної підтримки підприємництва в Казахстані не задовольняє сучасним вимогам побудови економіки знань на основі ефективної взаємодії держави, університетів і бізнесу. Результати дослідження спрямовані на коригування державної інноваційної політики Казахстану, зокрема в частині застосування більш адресних заходів щодо розвитку інноваційного підприємництва та вдосконалення системи підприємницької освіти.
Ключові слова: інноваційне підприємництво; мотиви впровадження інновацій; підприємницька освіта.

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Развитие инновационного предпринимательства: основные проблемы и образовательные ограничения в Казахстане

Аннотация
Исследование авторов направлено на выявление основных проблем развития инновационного предпринимательства в целом, а также повышения роли предпринимательского образования в Казахстане в условиях реализации приоритетной государственной политики инновационного развития. Цель исследования состояла в том, чтобы выяснить, почему реформы долгосрочной государственной политики по развитию предпринимательства не привели к повышению инновационного потенциала предприятий в национальной инновационной системе. В период с 15.08.2018 г. по 15.09.2018 г. был проведен социологический опрос по мониторингу инновационной активности на 172 предприятиях Казахстана. Исследование проводилось методом случайной выборки из общей совокупности всех предприятий республики. Сумма общей совокупности была принята как количество действующих субъектов малого и среднего предпринимательства по состоянию на 1 января 2018 года, которое, по данным статистики, составило 1 549 592 единицы в республике. Было обследовано 172 компании всех категорий бизнеса – от крупных до малых. Исследование проведено на основе анкетирования и интервьюирования предпринимателей Казахстана, внедряющих в своей деятельности непосредственные инновации. В рамках опросного листа и интервью ставился фиксированный набор вопросов. Основная часть вопросов позволила определить мнение предпринимателей по поводу текущего состояния развития предпринимательской сферы в Казахстане и главных проблем, препятствующих активизации инновационной деятельности, в том числе из-за отсутствия компетенции у руководителей предпринимательских структур и низкого качество подготовки специалистов. Основной вывод, который сделан авторами в рамках данного мини-исследования, заключается в том, что существующая система государственной и институциональной поддержки предпринимательства в Казахстане не соответствует современным требованиям построения экономики знаний на основе эффективного взаимодействия государства, университетов и бизнеса. Результаты исследования направлены на корректировку государственной инновационной политики Казахстана, в частности, применение адресных мероприятий по развитию инновационного предпринимательства и совершенствованию системы предпринимательского образования.

Ключевые слова: инновационное предпринимательство; мотивы внедрения инновации; предпринимательское образование.

1. Introduction

In 2011, Kazakhstan officially announced the transition to OECD standards in all areas of socio-economic development (Inform.kz, 2014), in particular in the field of scientific and innovative development with the priority of building a «Knowledge economy» based on the expanded reproduction of new knowledge in scientific organisations and universities, and the subsequent active implementation of scientific developments of domestic scientists in the business environment. This model of innovative development of the national economy has long been tested, and has been successfully applied not only in developed countries, but also with variable results in developing countries around the world, including in post-Soviet countries (Ulybyshev et al., 2017).

It should be assumed that modern innovations are not so much the result of fundamental or applied research carried out in the laboratory of universities or companies, as the result of the activities of innovative entrepreneurs operating in a network that unites scientists and engineers, risk companies and universities, suppliers of raw materials and consumers of products and services. Their sharing of ideas and know-how stimulates innovation and creates new markets. It is obvious that the formation of such relations requires a favourable social and cultural environment that can form the infrastructure of innovative entrepreneurship and education.

In turn, the theory of open innovation (Chesbrough, 2003) indicates that in a knowledge-based economy innovation must be diversified and inclusive, based not only on scientific knowledge, research and technological development, but also on entrepreneurial initiative and skill. The most successful of them also depend to a large extent on the availability of adequate social, organisational, economic, marketing and other competencies.

In Kazakhstan, to improve the situation in the field of innovative entrepreneurship and in the market of innovative products and technologies, a number of tools are used, the action of which is aimed at supporting and stimulating innovative initiatives. The innovation-support institutions

constitute one of the tools by which the government implements expansionary policy. The main goal of these institutions is to overcome specific barriers to the implementation of innovative ideas, which contributes to the stable and effective development of the economy of the state as a whole. A significant part of the institutions aimed at stimulating innovative entrepreneurship in Kazakhstan is focused on the development of businesses located in the capital and industrial cities, i.e. businesses located even in other less developed regions do not have access to them.

The current situation in innovative entrepreneurship hinders the development of innovation-oriented economy in Kazakhstan and the level of development of institutional conditions depends on the innovative activity of enterprises. Over the past 10 years, the rate of innovative activity in Kazakhstan has not exceeded 9.6% and ranged from 4.0% to specified range (State Statistics Committee of Kazakhstan, 2019), whereas in the USA this indicator in recent years has exceeded 75%, 62% in Japan, and 54% in Germany. More than 40% of enterprises in 27 EU countries (EU27) are innovatively active (Tsirenshchikov, 2015). Favourable institutional conditions are the basis of innovation not only for small businesses, but also for the regions. They contribute to the creation and implementation of new technologies, and the development of education and science.

Low business activity in small innovative entrepreneurship in Kazakhstan is also connected with the fact that small businesses often are created by individuals to carry out activities in the field of trade, public catering, consumer services, etc. Some of them are engaged in the industry. Typically, small enterprises do not have sufficient financial resources to acquire intellectual property rights and to organize the development and production of new products. There is no appropriate infrastructure or qualified personnel, which determines the relevance of research to determine the constraints of the development of innovative entrepreneurship in Kazakhstan.

2. Brief Literature Review

Among the post-Soviet countries, in Ukraine, as in Kazakhstan, the main problem of the development of the national innovation system and the development of innovative entrepreneurship is too low a share of science costs in GDP, which does not allow to build an effective innovation infrastructure (Kniazevych, Kyrylenko, & Golovkova, 2018). In Russia, the development of the national innovation system and the development of innovative business, are also concentrated in the observance of the proportions of the public and business sectors in the innovation process (Tambovtsev, 2018).

In European countries, the development of innovative entrepreneurship is not in ensuring its mass character, but in developing it in the high-tech sector and in ensuring the effectiveness of financial resources invested in innovative entrepreneurship, through the capitalization of the company (Baldi & Bodmer, 2018), and increasing the contradiction between obtaining scientific results and entrepreneurial income (Amoroso, Audretsch, & Link, 2018). In addition, the European Union is characterised by a comprehensive assessment of the results of financing of supranational programs for the development of innovative entrepreneurship (Aguiar & Gagnepain, 2017).

It is also important for Australia to assess the impact of investment in research and innovation on the productivity of the business sector, with the possibility of reallocating public resources to bottlenecks in the development of innovative entrepreneurship (Elnasri & Fox, 2017). In China, the progressive development of the national innovation system is primarily associated with an increase in public funding. However, now there are problems associated with the relatively low efficiency of public investment in science, compared with the world's best practices (Zhao & Song, 2018), and the development of competent business structures in the high-tech field. Developing countries of Africa, as well as Kazakhstan and Ukraine, are characterised by the problems of innovative entrepreneurship development due to the lack of full access to financial resources for the development of innovative business and the creation of appropriate institutional conditions (Fombang & Adjasi, 2018).

In General, for developing countries in the Asia-Pacific region, characterised by the use of measures to promote innovative entrepreneurship through the creation of institutional conditions for the development of specialised competencies of entrepreneurs that allows them to create enterprises in the field of innovation (Pawitan, Widyarini, & Nawangpalupi, 2018).

The study ties the presence of educational competencies in the field of innovation and entrepreneurship to the subject of many research, among which it is worth mentioning the study (Marcotte, 2014), which shows the dependence of the rates of innovative development of the national economy on the presence of the types of innovative entrepreneurs that also depended on their level

of competence. And the higher the competence is, the higher the development indicators are. We should also mention the research, in which the authors asked the question regarding determining the more leading competence of the development of innovative entrepreneurship: either innovative or entrepreneurial (Santandreu-Mascarell, Garzon, & Knorr, 2013). A wide range of researches in this direction allowed us to conduct a similar research for the conditions of Kazakhstan.

Thus, for Kazakhstan, as well as for many developing countries, the development of innovative business has very high relevance. Further development of the national innovation system of Kazakhstan is associated with the need to strengthen the participation of business structures in the innovation and technological development of the country. Therefore, in the framework of this research will identify the main problems of the development of innovative entrepreneurship in Kazakhstan.

3. The purpose of the study is to find out why the reforms of long-term state policy on the development of entrepreneurship have not led to an increase in the innovative potential of entrepreneurs in the national innovation system.

4. Results

Before considering the problems of the development of innovative entrepreneurship in Kazakhstan, it is necessary to determine the role and place of the entrepreneurial sphere in the national economy, through the main parameters of its development. Table 1 presents the main indicators of the development of the entrepreneurial sphere of Kazakhstan in recent years. The total number of small and medium-sized enterprises (SMEs) and their active part in general has a volatile trend of dynamics, which is associated with cycles of fluctuations in business activity in Kazakhstan, which is affected not only by the internal economic situation, but also by the development of business activity within the Eurasian Economic Union (Ulybyshev & Kenzhebekov, 2017). A certain decline in indicators after 2014 is just an evidence of these processes. As for the other indicators, they have a fairly positive trend, the growth of employment in the SMEs sector, the output of SMEs in value terms for the study period increased almost 3 times, and the share of SME products began to exceed 26%, which generally indicates a fairly high role of the business areas in the economy of Kazakhstan and the prospects for its increase (Table 1).

Table 1:
Main indicators of development of business sphere of Kazakhstan

	2012	2013	2014	2015	2016	2017
Number of SMEs in the Republic of Kazakhstan, units	1,399,787	1,535,983	1,655,386	1,481.454	1 498,243	1,540,592
Active subjects of SMEs, units	809,750	888,233	926,844	1,242,579	1,106,353	1,145,994
Specific gravity of active SMEs in the total number of active economic entities in Kazakhstan, in%	95.1	95.4	95.9	96.6	96.4	96.2
Number of employees in SMEs, people	2,383,338	2,576,899	2,810,962	3,183,844	3,166,792	3,190,133
Output by SMEs, million tenge	8,255,123	9,165,412	15,568,081	15,699,405	19,609,010	23,241,125
Share of SME products in Kazakhstan's GDP,%	17.1	16.7	25.9	24.9	26.8	26.8

Source: Compiled by the authors based on data by State Statistics Committee of Kazakhstan (2019)

The processes of innovation, actively promoted in recent years, in the current period of instability and uncertainty is in the new economic reality (Davletbayeva, Taubayev, & Kuttybai, 2018). The peculiarity of our time is the formation of new priorities, new challenges and new approaches to solving problems that arise before Kazakhstan and other countries. Large-scale changes taking place today in the global economy directly affect the situation in our country. They create new opportunities for accelerated development and, at the same time, set limits that we have to reckon with. Innovative plans and strategies for all enterprises at all levels are being reassessed and adjusted (Petrenko, Pizikov, Mukaliev, & Mukazhan, 2018). The aim of the study was to obtain a rapid assessment of the relevance of innovative changes in the new economic reality. The results obtained in the framework of this pilot study are general in nature and represent an up-to-date assessment of the level of innovation in enterprises in Kazakhstan (Kurmanov & Aibosynova, 2016). The object of the research was entrepreneurs of the Republic of Kazakhstan of various sizes, as well as industries and fields of activity.

In the period from 15 August 2018 to 15 September 2018 a sociological survey to monitor innovation activity at 172 enterprises in Kazakhstan was conducted. The study was conducted by

random sampling from the general totality of all enterprises of the republic. The total amount of the general totality was taken as the number of operating small and medium-sized businesses (SMEs), as of 1 January 2018, which, according to statistics, was 1,549,592 units. It surveyed 172 companies of all categories of business, from large to small ones. At a confidence level of 95%, the estimated error of the sampling error was 7.5%, which indicates a high level of representativeness and makes the results of the sample reliable.

The subject of the study is identified as socio-economic relations arising from the development of innovative activities on the objects of entrepreneurship in the new economic reality. The main objectives of the study are:

1. to determine the level of innovation needs;
2. to evaluate the current directions of innovation;
3. to identify the causes and factors of innovation processes;
4. to study the problems of introduction of innovations and evaluating their effectiveness;
5. to determine the main problems of matching the qualification of entrepreneurs to the tasks of development of innovative entrepreneurship.

As the main research methods, we used: mass anonymous survey, individual in-depth interview of the pilot group, summary and grouping, statistical factor analysis.

Sampling: we conducted a random non-repeating sample of companies, with a probability of 95% and a sampling error of 7.5%, the sample was 172 respondents of the subject. Enterprises that do not innovate in the survey did not participate.

The surveyed enterprises represent various sectors of activity, which allows us to speak to some extent about the assessment of the relevance of innovation for the entire economy of the republic. Of the total number of enterprises implementing innovations or introducing its elements into existing production, the largest share is occupied by food (18%) and manufacturing (12%), services (16%) and light industry (16%). Among the respondents in a comparable size (7-10%), the following are presented: construction, agricultural, and metal processing. In total, numerically significant shares of the 11 activities of the respondents were identified. The survey covered various categories of enterprises. The structure of the respondents reflects the structure of existing enterprises. Thus, the validity of the sample results is achieved. Large enterprises accounted for 8% of the respondents, medium - 29% and the largest number of respondents are small business representatives (63%).

The first group of questions considers the main motives for the implementation of innovation by entrepreneurs (Table 2). A vast majority (69%) recognised the problem of the need for modernisation. Almost every fourth company (23%) is in dire need of modernising its own production. The majority of respondents (46%) consider the average degree of the need for modernisation in business.

Table 2:
Motives of innovative activity of entrepreneurs

Questions	Distribution of answers, in %
Please rate your level of need in the modernisation of the production process.	High - 23% Medium - 46% Low - 31%
What innovations do you introduce in your production?	Change in the assortment - 35% Introduction of new equipment and technology - 35% Creation of new services and departments - 9% Use of new management methods - 15% Introduction of information technologies - 18% New methods of organization and remuneration - 13%
What internal reasons prompted you to innovate?	Strong equipment deterioration - 30% Need to reduce costs - 36% Need for quality improvement - 38% Need to expand production capacity - 22% Change of management at the enterprise - 10%
What result do you expect from innovation?	Saving on market position - 33% Conquest of new markets - 43% Conquest of a new category of consumers - 27% Improving the competitiveness of products - 21% Reducing the cost of production - 11%
Why do you buy technology abroad?	I use domestic - 48% There are no analogues of purchased technological equipment in the country - 21% The purchased technology allows to enter the foreign market - 10% The technology provides savings - 16% More favourable terms of delivery - 4%

Source: Compiled by the authors

Only a third of enterprises is up to date and does not need to be upgraded as soon as possible. In general, the introduction of innovations remains a national problem, and the enterprises themselves have a high level of awareness of it is necessity.

Even realizing the need for innovation, enterprises cannot afford to carry out its full implementation in the conditions of the real economy. First of all, those innovations are carried out that give a quick and real visible effect. The dominance of technological innovation, recognition of their values and priorities is clearly seen in Kazakhstan (Ulybyshev et al., 2017). It can be said that there is a commodity-technological dogma which in the mass entrepreneurial consciousness determines the value of only technological innovation, ensuring the creation of a new product.

From the number of implemented innovations, 35% is accounted for by the introduction of new equipment and technology, and another 35% of innovations is carried out to develop the range on a new technological basis. The introduction of new information technologies, as an innovation combining technological re-equipment and the introduction of a new business culture, is carried out at 18% of the enterprise. New methods of organising and paying for labour, new forms of management, as well as the creation of new services and departments are used by no more than 10-15% of enterprises (see detailed results in Table 2). Underestimation of managerial innovations leads to a decrease in the efficiency of technological innovations and indicates an insufficient level of general managerial competence of Kazakh entrepreneurs (Taubayev, Akenov, Ulybyshev, & Kernebaev, 2017). Confirmation of the lack of competence in innovation management is also confirmed by the results of the answer to the question about the internal causes of innovative activities in the organisation.

Innovations are perceived rather as a necessary measure, rather than a tool for business development. The need to improve product quality and reduce production costs are becoming the main internal causes of innovation. It is significant that a change in ownership does not lead to business innovation. Only every tenth enterprise introduces innovations at the request of the new owner, which indicates a change in management policy. In general, entrepreneurs today prefer to get the most from the business, rather than invest in it.

From innovation, Kazakh entrepreneurs expect, first of all, the conquest of new markets (43%) and the preservation of their positions in the market (33%) through the acquisition of a new category of consumers. Clearly expressed «market» orientation of innovation, designed to become a kind of marketing tool to promote the market.

In the current period, the share of using domestic innovations has increased. Of the respondents, 48% introduced innovations of domestic production. The other group of the entrepreneurs who had carried out the modernisation of production on the basis of foreign technologies, among the reasons for the choice of foreign innovations, named: the lack of domestic analogues (21%), the resource-saving nature of imported technologies (21%) and more favourable terms of delivery. The demand for domestic innovative technologies could become greater both with the improvement of the potential of technologies, and with the improvement of methods of their promotion.

The next group of questions considers the problems of financing and innovation management of entrepreneurs, and also includes issues of competence of entrepreneurs (Table 3). The main sources of financing for innovation remain the own funds of enterprises (59%); half of the investment has been received on loans (28%), while foreign investments play a minor role. Unfortunately, government programs did not become drivers of growth in the innovative activity of domestic entrepreneurship; only 21% of respondents used state program funds to modernise their enterprises.

The lack of managerial competence in introducing innovations is confirmed by the indicator for evaluating the effectiveness of innovative projects. Every third company that made a different type of innovation did not evaluate its effectiveness!

In the vast majority of cases, the calculation of the effectiveness of innovative projects of the organisation is carried out on its own (44%), which casts doubt on the reliability of the calculations and reduces the effectiveness of the innovative potential. Only 16% of respondents involve specialised companies to evaluate the implementation. The share of partners of different levels in monitoring the effectiveness of innovation is insignificant and is noted in the responses of 2-5% of respondents.

Innovation activities are traditionally initiated by managers and owners of enterprises (54% and 35%, respectively). Specialists in rare cases, initiate the holding of innovation, which also reflects the low level of innovation culture within organisations.

Table 3:
Financing and competence of managing innovation of entrepreneurs

Questions	Distribution of answers, in %
Sources of financing of innovation	Own funds of the enterprise - 59% Government programs - 21% Loans to financial organisations - 28% Foreign investment and other - 6% and 1%
Who calculates the effectiveness of your innovative projects?	Own services of the enterprise - 44% Not held - 30% Specialised companies - 16% Customers - 5% Partners - 3% Investors - 2%
Who is the initiator of innovation?	Management - 54% Owners - 35% Specialists - 13% Customers - 9% Investors - 4%
What are the main reasons that prevent innovation?	Lack of funding - 74% Insufficient state support - 18% Lack of competent specialists - 18% Lack of information and knowledge - 13% A high risk of development of innovation - 11%
Do your employees need special educational programs on innovative activity?	Yes - 73% More Yes than no - 16% No - 11%
What format of business education is acceptable for you?	Additional university education – 61% Certified courses - 32% Basic university education - 7%

Source: Compiled by the authors

The lack of internal innovation activity leads to the fact that innovation is widely perceived as something expensive, brought from the outside. For their implementation, the internal resources and the potential of the enterprise are not considered, and the methods of lean manufacturing, permanent small innovations, innovation and local inventions are not considered Yuliati, Rahayu, Kusnandar, & Soedarto, 2019). Kazakh businessmen continue to believe (largely erroneous) that the main thing in innovation is to provide sufficient funding. All other factors are not evaluated as significant. A lack of information, a lack of specialists, even innovative risks are not considered by entrepreneurs against the background of the dominance of financial needs.

Continuing to identify the problems of the lack of competence of entrepreneurs for innovation, we asked the question «Do your employees need special educational programs on innovation?», to which 73% of entrepreneurs gave an affirmative answer and another 16% also expressed their consent than refusal, and only 11% considered that they did not need such an education. When asked in what format they would like to receive such a specialised entrepreneurial education, more than 60% of entrepreneurs chose the option of additional University education and another 32% would be satisfied with certified courses, and only 7% said that they would like to receive such education as a basic one. In general, about 70% of entrepreneurs would like to receive a special business education in terms of introducing and managing innovations under the auspices of universities, this is a good signal for the higher education system, and moreover, courses could be conducted on a university basis, which implies the development of appropriate mechanisms for Kazakh universities, in the direction of interaction with entrepreneurs.

5. Conclusion

Briefly summarising the survey data, it should be noted that the problem of introducing innovations into the domestic economy remains relevant. It has an institutional nature and consists in the absence of an innovative culture, low activity of employees and specialists of enterprises, insufficient competence of managers. Innovations brought from outside are primarily technological in nature, aimed at increasing the product range for new markets, and have no reliable control of efficiency. The lack of funding, perceived as the only significant factor, does not encourage enterprises to innovate on their own, to introduce organisational and managerial innovations or rationalisation transformations. With the organisation of appropriate conditions for obtaining new knowledge and improving their competence, entrepreneurs are ready to receive entrepreneurial education in terms of enhancing their innovation and innovation management.

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